QUARTERLY SUMMARY

OF THE

IMPROVEMENTS AND DISCOVERIES

IN THE

MEDICAL SCIENCES.

ANATOMY AND PHYSIOLOGY.

On the Function of the Spleen.

Dr. M. Schiff, Professor of Physiology at Geneva, in a paper on the above subject, read at the late meeting of the International Medical Congress at Geneva, presented the following conclusions:—

1. Extirpation of the spleen exercises no durable influence on the quantity ot the white or red blood-corpuscles.
2. For a limited time after extirpation the number of white corpuscles is greatly increased, while the red corpuscles may or may not remain unchanged. These alterations do not depend on the removal of the spleen; they are connected with the preliminary steps of the operation, and are seen to occur when the first steps have not been followed by extirpation of the organ.
3. Tumefaction of the lymphatic or other glands occurs in exceptional cases only. The so-called supplementary spleens are not found if the animal be allowed to live for a year and a half after the operation, or if extirpation has been practised a few weeks after birth.
4. The tumefaction of the mesenteric glands observed in a few cases after the experiment seems to depend on a limited chronic peritonitis which sometimes follows the operation.
5. The spleen appears to increase in size between the fourth and seventh hours following the digestion of a copious meal.
6. During digestion, or more properly speaking, during absorption of food by the stomach, the spleen prepares a ferment which enters with the blood into the pancreatic tissue, and there meets a specific substance (probably albuminoid) which it transforms into pancreatic pepsine, that is to say, a substance capable of digesting albumenoid matters.
7. The digestive power of the pancreatic juice over albumenoid matter is lost after extirpation of the spleen, but its other digestive properties remain. The duodenal digestion of albumenoids, however, is rendered weaker.
8. After removal of the spleen the material destined to form pancreato-pepsine accumulates chiefly in the pancreas, and may there be also changed into pancreato-pepsine under the influence of those chemical changes which accompany the commencement of putrefaction after death.

9. After division of its nerves the spleen remains flaccid and then wastes, as is generally the case with erectile tissues when their vaso-motor nerves are paralyzed.—*Med. Examiner*, July 26, 1877.

Observations on Gastric Digestion.

F. **KRETSCHY** has published (*Deutsches Archiv für Klin. Med.*, Bd. xviii. p. 527) some observations on digestion made on a servant girl, aged 25, who was otherwise healthy, but suffered from a gastric fistula, consequent on the bursting into the stomach of an abscess originating in disease of the seventh rib of the left side. The opening was three centimetres in diameter (one inch), and from it protruded a red and easily bleeding fold of mucous membrane. A sound could readily be introduced into the alimentary canal, and conversely a portion of any food that was swallowed immediately made its appearance at the external orifice of the fistula. When Kretschy commenced his experiments the opening had already existed five months. Kretschy sought to determine the duration of normal digestion; and as the activity of digestion is dependent on the degree of acidity of the contents of the stomach, he endeavoured to ascertain how soon after food the stomach gave an acid reaction; when the formation of acid reaches its maximum; how it rises and falls, and how the alimentary canal behaves. He found that the digestion of breakfast lasted five and a half hours, the acid reaction attaining its maximum in the fourth hour, and falling to neutral in the course of the following hour and a half. The digestion of the mid-day meal (dinner) lasted seven hours, the maximum acid reaction occurring about the sixth hour, and the stomach becoming neutral at the end of the seventh hour. Examination of the contents by means of the microscope at the end of the fifth hour demonstrated the presence of numerous muscular fibres and starch granules. The digestion of supper lasted from seven to eight hours. At the catamenial period the stomach never at any time of the day presented a neutral reaction. The addition of 3 ccm. of alcohol prolonged the period of digestion of dinner; coffee prevented the acidity from becoming so great, and prolonged the duration of digestion one hour. Pepsin in 7-grain doses did not shorten the period of digestion. Distilled water did not cause the stomach to become acid. Alcohol becomes converted into aldehyde in the stomach.—*British and Foreign Med.-Chir. Review*, July, 1877.

On the Cause of Sleep.

Dr. W. **PREYER**, Professor of Physiology at the University of Jena, at the late meeting of the International Medical Congress, in a paper which he read on the above subject, presented the following conclusions:—

1. The researches which I have made on this subject lead to the following conclusions. Natural, periodical sleep is a condition totally different from pathological or artificial conditions resembling it, such as somnolence, coma, asphyxia, and narcosis.

2. Natural sleep has often been confounded with these states. The chief difference will be found in the circumstance that natural sleep is always preceded by some fatigue of muscles, organs of sense, or brain.

3. No mental phenomenon can manifest itself unless the brain be supplied with a certain amount of oxygen. The latter is carried to the brain by the bloodvessels. Whenever the ganglionic brain-cells receive a diminished quantity of blood cerebral action is suspended as it is during sleep.

4. Now, as the brain of a sleeping animal receives as much blood as it does when the animal is awake, we are compelled to infer that the influences of oxygen on the waking and the sleeping brain are different.